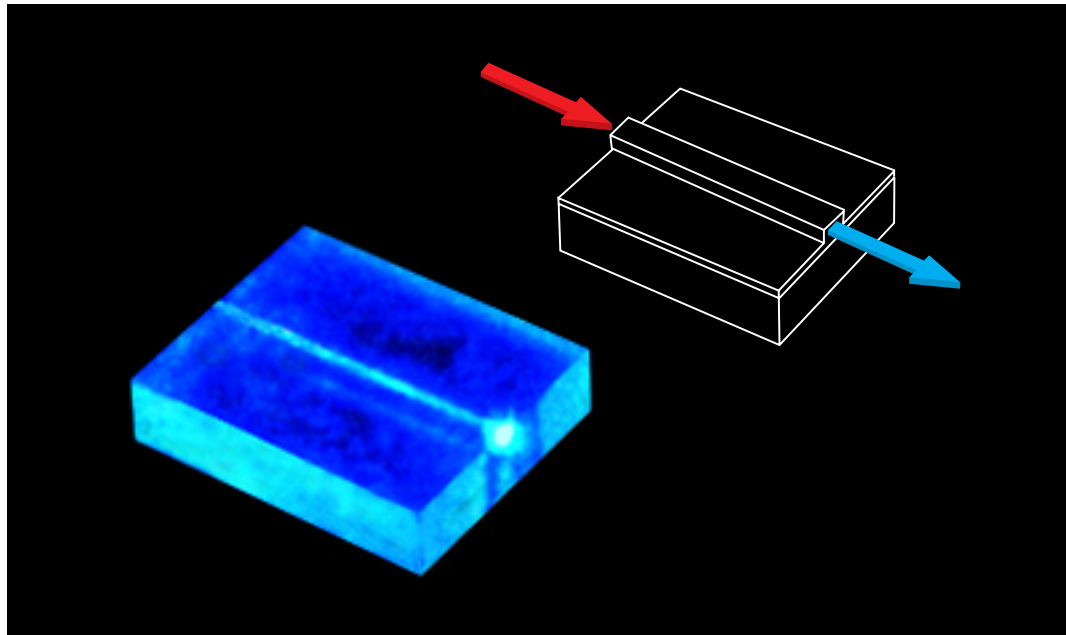


KNbO₃ Waveguides



Features

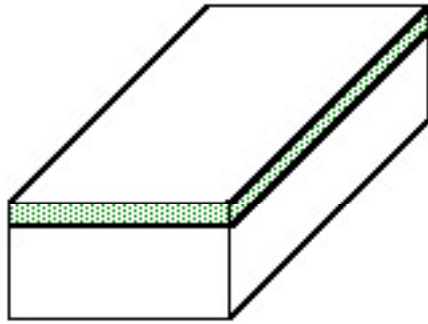
- excellent long-term stability
- low coupling loss to single-mode fibers

Properties

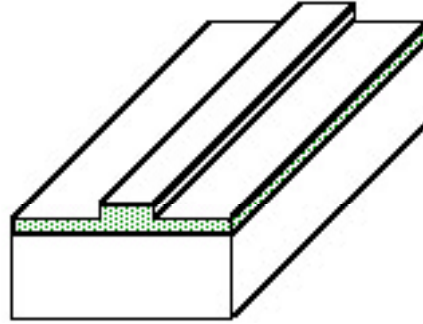
- large phase-matchable nonlinear-optical susceptibilities
- large electro-optic coefficients
- high threshold to optical damage

Applications

- optical second-harmonic and sum-frequency generation
 - electro-optic switching and modulation
 - optical amplification
-



planar waveguides



ridge waveguides

Physical Properties

nonlinear optical coefficients*	d_{31}	= 11 pm/V
	d_{32}	= 12 pm/V
electro-optic coefficients	r_{33}	= 63 pm/V
	r_{42}	= 450 pm/V
dielectric constants	ϵ_1	= 150
	ϵ_2	= 985
	ϵ_3	= 44
elasto-optic constants	p_{11}	= - 0.20
	p_{31}	= 0.64
attenuation losses	α	= 2 dB/cm at $\lambda = 633$ nm
photorefractive sensitivity	S	= 2 cm ³ /kJ at $\lambda = 633$ nm
(Fe-doped waveguides)	S	= 0.001 cm ³ /kJ at $\lambda = 1550$ nm

*based on $d_{11} = 0.29$ pm/V of α -quartz

Rainbow Photonics provides custom services to design and fabricate KNbO₃ waveguides for special OEM or laboratory applications.

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